AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for compensating for phase distortions in a base station of an OFDMA (orthogonal frequency division multiple access) based cellular system, comprising:

(a) receiving OFDM (orthogonal frequency division multiplexing) symbols from a plurality of mobile stations, canceling a symbol guard interval using a reference timing signal and an estimation of relative delay times among the mobile stations, and performing an FFT (fast Fourier transform) process on the OFDM symbols~~, the reference timing signal being established based on an estimation of relative delay times among the mobile stations~~;

(b) dividing the OFDM symbols that have undergone FFT processing into subchannel groups of the mobile stations;

(c) restoring phases of the OFDM symbols divided into subchannel groups based on the estimation of the relative delay times among the mobile stations; and

(d) performing channel estimation and equalization on the restored OFDM symbols for each mobile station to thereby perform a demodulation process.

2. (Original) The method of claim 1, wherein as to the reference timing signal, predetermined mobile stations with delay times shorter than a predetermined time are formed into a group, and the reference timing signal for decoding mobile station signals of this group is generated.

3. (Previously Presented) The method of claim 2, wherein the reference timing signal is obtained based on the delay time of one of the mobile stations with the shortest delay time within the group.

4. (Original) The method of claim 1, wherein the FFT process in (a) is performed according to a reference symbol timing of the base station.

5. (Previously Presented) The method of claim 1, wherein in (c), the phase distorted OFDM symbols of the mobile stations are restored by the relative delay times calculated based

on a difference between a delay time of the base station and a reference time resulting from the reference timing signal.

6. (Original) The method of claim 1, wherein (d) comprises performing channel estimation and equalization to reduce residual distortions.

7. (Currently Amended) In a device for compensating for phase distortion of OFDM symbols received from a plurality of mobile stations in a base station of an OFDMA (orthogonal frequency division multiple access) based cellular system, a phase distortion compensator in the base station of the OFDMA-based cellular system, comprising:

a symbol guard interval canceller for canceling a symbol guard interval of the OFDM symbols of the plurality of mobile stations received at the base station, the symbol guard interval canceller to cancel the symbol guard time using a reference time and ~~based on~~ an estimation of relative delay times among the mobile stations;

an FFT (fast Fourier transform) processor for performing an FFT process on the OFDM symbols with the cancelled symbol guard interval;

a subchannel divider for extracting subchannels allocated to each mobile station from the OFDM symbols that have undergone the FFT process;

a symbol timing estimator for estimating the relative delay times among the OFDM symbols received from the mobile stations;

a delay time phase compensator for compensating for phase distortions of the OFDM symbols of the mobile stations of the subchannels extracted by the subchannel group divider by using the relative delay times estimated by the symbol timing estimator; and

a channel estimation and equalizer for performing distortion correction of the OFDM symbols of the mobile stations of the subchannels compensated by the delay time phase compensator, the distortion correction being performed according to an amplitude and a phase resulting from a signal channel of the mobile station.

8. (Currently Amended) The device of claim 7, wherein the symbol timing estimator further comprises:

a timing offset estimator for estimating delay times of the mobile stations with respect to a transmit symbol timing of the base station; and

a timing controller for grouping together the mobile stations according to the delay times of the mobile stations estimated by the timing offset estimator, obtaining ~~a~~ the reference time using a symbol timing of the mobile station with the shortest delay time in each group, and obtaining the relative delay times by using the reference time.